Appendix A. High Reliability Organization Learning Network Operational Advice from the Sentara Network Site Visit

Contents

Overview

This document summarizes practical suggestions for becoming a high reliability organization that were suggested by representatives of Sentara and other healthcare systems attending the site visit. All the ideas reflect ideas that have been tried; some successfully and others not so successfully. The focus of the site visit was on two of Weick and Sutcliffe's aspects of a high reliability organization (HRO):

- How can healthcare systems become more sensitive to operations?

- How can healthcare systems develop a preoccupation with failure that reduces the likelihood that failures will occur?

Detailed slides that cover the topics Sentara discussed as well as other handouts from systems in attendance are available from Margie Shofer at AHRQ (Marjorie.Shofer@ahrq.hhs.gov).

This document organizes the topics discussed into answers to three important categories:

- **Rolling out improvements:** Many good ideas never are implemented—even in systems that want to improve. Practical suggestions on how to overcome these barriers to rolling out high reliability initiatives are summarized in this section.

- **Working out improvements**: Sometimes the difference between success and failure is in the details of the initiative. How to create and measure high reliability system changes that will work is the focus of this section.

- **Spreading out improvements:** Innovations often are tried first in a single hospital within a system or even within a single hospital unit. This section summarizes practical ideas for helping to spread ideas that are working across systems and units.

Rolling Out Improvements

Many specific and general ideas about what makes rollouts more successful were shared. Although some of these seem obvious, systems shared multiple examples of projects that failed or were slowed because they failed to do these things—or succeeded because they did do them. These ideas are divided into the following categories:

- **Preconditions for a successful rollout:** making sure the system is ready for the initiative
- **Planning for a successful rollout:** making sure you're solving the right problems with the right people
- **Sequencing and staging**: making sure the right things are done in the right order
- **Education and communication**: making sure the initiative is effectively introduced to staff

Preconditions for Successful Rollouts

- Don't introduce interventions unless they are fully linked with policies and aligned with incentives for performance. Several systems expect all new initiatives to be linked to dashboards reviewed by executives or the board before the initiative can begin. Sentara and other systems also incentivize improvements in areas where they are looking to improve. For example, employee bonuses linked to improvements on behavior based expectations (BBEs) for error prevention amounted to the equivalent of two weeks pay. Effective alignment helps new initiatives get running quickly and effectively.
- Make sure there are clearly identified owners for all actions that are key to a successful implementation. Systems reported substantial improvements in performance when actions are assigned to specific owners. When an action is owned by a team rather than an individual, it is less likely to happen. Ownership occurs at two levels. For important actions, a problem owner is the operational staff person who is responsible for making something happen. But there also should be an executive sponsor that can help overcome barriers that the problem owner can't resolve.
- Make sure that safety and quality issues are carefully linked to the operational issues. When quality improvement (QI) staff attempt to develop an intervention without close coordination with operational leadership, the project is unlikely to work. But if operational and improvement planners work together to link their goals and processes, the project is more likely to have a successful start.
- If an improvement cannot be integrated into an ongoing initiative or process, do not try it. Until it is integrated it will not be successful. A key to high reliability is simplifying systems and processes so that they can be performed consistently. The more separate initiatives or processes that exist, the less reliable the overall system will be. Sentara and others avoid introducing new things until they've developed an effective way to integrate them into ongoing processes. For example, if administrators already are rounding to assess the patient experience, add safety assessment to this rounding so both occur together. This also communicates the message that patient satisfaction and safety are equally important concerns.

- Negotiate in advance where savings from an innovation would go. This will assure that resources that are freed up can support top priorities and will increase motivation by key people necessary to make the innovation successful.
- Avoid having too many priorities. Cincinnati Children's stresses keeping a short priority list. The only way something goes onto this list is if something on the list is completed or removed. This assures the focus new projects require. At the micro-system level, several systems use strategies that require managers to list all of the things they are trying to do and then to classify these things based on whether they can and cannot do. Management then must respond to these lists by setting priorities and making decisions about more resources. This is very difficult for managers, but helps avoid starting new things that personnel feel cannot be done (like many other things they already believe they cannot do.)
- When planning new initiatives, make sure both time and people are built into the budget. When the dollars are there but key people lack the time to work on the project, it creates frustration and reduces success.

Planning for Successful Rollouts

Solving the Right Problems.

- Make sure the root causes of problems are fully understood. Bad root cause analyses in the past led Sentara to frequently have a two-fold solution to whatever the problem was reeducate the staff and develop a new policy, but neither had long lasting effects. Better understanding of causes led them to identify the systemic issues that were the real reason for the mistake, which in turn led to better solutions that prevented recurrences.
- Assess the problem type or failure mode type (Human Error, Organization & Process, Management Systems, Work Environment, Human Factors, or Equipment & Medical Device) before deciding on appropriate diagnostics and appropriate measurements. If you know a system is completely broken, doing root causes analyses or developing performance measures is likely to be a burdensome waste of time. Focus energy on making the system reasonably reliable and then you can profitably measure it or assess the causes of problems that do occur.

Including the Right People.

- The key to involving physicians is to avoid systems or procedures that make them more inefficient. Physicians do not mind changes in how they do medicine if those changes make them more efficient (or at least do not make them less efficient). Involving them in the planning process is key to avoiding changes that they will perceive as making them less efficient.
- Involve all key players in developing solutions to problems or improvement interventions. This increases their buy-in and reduces the likelihood that important factors are overlooked.

Sequencing and Staging.

- Start by simplifying policies and procedures to make it possible for staff to comply. Shortly after Sentara introduced BBEs, they began work to simplify processes so that people could see that changes would not be a net increase to their workload. Gaining buy-in and appreciation for making jobs easier before adding new procedures or processes helped employees to not regard the new things as extra burden.
- Roll initiatives out incrementally. For example, Sentara introduced and educated staff regarding the BBEs first before implementing Red Rules. In order to avoid the perception that Red Rules are a punitive activity, there needed to be grounding in behavior accountability for error prevention.
- Introduce non-punitive changes before ones that could be punitive. Sentara introduced behavior based expectations before introducing Red Rules because they wanted people to believe they could do what they were supposed to before Red Rules were introduced. Without a culture that supports disclosure and questioning, introducing Red Rules could be counterproductive.
- Fix the processes before you try to automate them. Several systems observed that electronic medical record (EMR) can be counterproductive if it simply automates processes that are not safe. So they have focused on making the processes safer (and simpler), which means that EMR can be easier and more successful.

Education and Communication.

- Focus communication strategies to address vertical alignment of specific and concrete behaviors with the overall organizational mission rather than on general themes. For example, messages to "be safer" are too abstract to produce needed behavioral changes while specific messages "never disturb someone at the medication dispensing machine (medication distribution station)" are actionable.
- Build a culture that is supportive of improvements in safety and quality by developing stories and themes that resonate with staff. Because of its proximity to naval bases and nuclear power plants, Sentara staff relate well to the concept of "having a wingman" and to Red Rules and other techniques linked to the nuclear power industry. When new initiatives are linked to these common themes, buy-in is quicker.
- Since behavior change leads to culture change, make education as hands-on and non-traditional as possible. Unless training lets people model and act out desired behaviors (i.e. having a questioning attitude), it is unlikely to change behavior. Sentara has shifted their training approach to include a large hands-on learning component rather than just didactic content, which they are finding works better in achieving the changed behaviors required to become more reliable.
- Train people together as teams when introducing new processes or initiatives. This reinforces the need for them to operate as teams, allows for valuable role playing, and reinforces messages of equality and empowerment.

Working Out Improvements

Sentara provided a set of PowerPoint® slides that addressed their efforts in the following areas:

- An overview of their efforts to transform themselves into a high reliability organization
- How to become more sensitive to operations
- How to become more preoccupied with failures and their future avoidance

Rather than duplicating these slides, which are available on the Network portal and from AHRQ and Delmarva, this section highlights observations and challenges in these areas that came out of the discussion between system representatives.

Overview Observations

- By looking outside healthcare to other industries such as nuclear power, Sentara was able to gain insight into a different approach to accelerating organizational improvement. They also acquired ideas and operational insights that have been essential to the improvements they are making.
- Rather than making the focus specific behaviors and processes, Sentara views both behaviors and outcomes as the product of shared values and beliefs (i.e. their culture). But Sentara has concluded that the way to create the right culture is heavily dependent on accountability for performing safe behaviors by all levels of staff.
- Different types of assessment tools have different functions. While common cause analyses of past events can help understand past performance by looking for common themes, human factors analyses shed light on current performance and culture assessments provide the best insights into future performance by the system. Understanding the different roles these assessment types can play will help determine which are most appropriate to use in a specific situation.
- Sentara's assessment of past safety events led them to identify poor communication, inadequate attention to detail (especially on repetitive tasks), noncompliance with policies and procedures, and failure to recognize risk and use error prevention techniques as the primary causes. Other systems agreed that these factors were instrumental in safety events in their hospitals as well.
- If you can't reduce what you want staff to do into a limited set of clearly defined behaviors, your system will not be reliable. Sentara has created a set of BBEs for staff that are summarized on slides 11 and 12. For each expected behavior, there is a specific tool or technique to carry out error prevention.
- The process of building accountability around performance of BBEs in Sentara hospitals was associated with a substantial reduction in sentinel and other serious events. An important message to CEOs is that implementing BBEs was also associated with a substantial reduction in insurance claims linked to hospital errors. Sentara has sustained a reduction in claims from 25 million to between 10-15 million over a three year period.
- Measuring sentinel and other safety events is quite complex. Some systems reported experiencing increase in reported events as they worked to make their cultures more transparent and attuned to safety issues. Other systems reported instances where a large

percentage of some kinds of errors (i.e. medication) were not reported. There was general agreement about several issues relating to measuring errors:

- Measure both minor and major events so that both can be trended. In a punitive culture, both will be underreported. In a just culture, both will be reported more frequently, but major events should decline more substantially than minor ones.
- Look for alignment between these measures and other indicators of safety. Sentara is more confident in their measures because their improvements on event measures correspond to reduced insurance claims.
- Consider measures that examine the ratio of major to minor safety events. Such measures may encourage reporting of small errors and allow hospitals to see whether the ratio of major to minor errors is declining over time.
- As well as helping to monitor progress towards safety, measurement and results, like those Sentara, is reporting are key to reinforcing a culture that values safety and is proud of efforts to improve it.

Efforts to prevent errors become most powerful when the behaviors become habits that don't require extra work or thought. By converting these behaviors to habits, Sentara hopes to see an 80 percent reduction in safety events after a two year period in which they worked to make safe behaviors habits.

While Red Rules are an extremely valuable part of a safety culture, there were several keys to using them effectively:

- Precede the introduction of Red Rules with the rollout of BBEs. That will prevent Red Rules from becoming punitive.
- Keep the number of Red Rules quite small. At Sentara each unit has 2-3, although one initially proposed 29 Red Rules.
- Focus on decision-based behaviors rather than skill-based behaviors. Things such as hand washing are important, but aren't the best match for Red Rules/
- Without caution, over reliance on Red Rules risks making people less attentive to detail. So stressing the continued need for professional judgment and introducing other rule types that require conscious decisions may help prevent this.
- Introduce Red Rules to non-physician staff first. A few systems reported trying Red Rules with physicians, but found this requires substantial discipline and support from executive and physician leadership.
- Recognize that much of the value of Red Rules comes from the staff discussion about what these rules should be. This forces staff to discuss potential threats to safety that exist in their unit and to identify which of those threats most require Red Rules to prevent them.

Sensitivity to Operations

High reliability systems pay close attention to operations. Weick proposes that by maintaining a high level of situational awareness a system will be able to deploy resources at the appropriate time, understand the implications of a situation, and use this information to predict events that

may occur in the future. Only by focusing on these issues will a system be able to reduce the number of errors likely to occur in the future. This section captures ideas shared by the systems on how to become more sensitive to operations.

- Making people more sensitive to operations requires making them more sensitive to relationships with other people. Because humans play major roles in the operations, they must be attended to in a highly reliable system.

- Daily check-in meetings are an effective way to maintain sensitivity to operations. Here are concrete steps to making them effective:

    - Be extremely consistent. At Sentara the meetings are never canceled and the time is never changed.
    - Make it a stand-up meeting. This will allow meetings to stay very short and focused
    - Have a standing agenda. In one hospital, there is a check in package that consists of the nursing supervisor's report, the census report, and the OR schedule. And the agenda consists of:

        - Issues in the past 12 hours
        - Any pressing problems at present
        - Any anticipated problems coming up
        - Staffing issues
        - Flow issues
        - Facility issues

Obviously for each hospital, the agenda would be different, but a standard agenda lets the meetings be more efficient:

    - Make sure others know about the meeting. This will allow them to show up and announce or raise issues or ask or answer questions.
    - Do not try to solve all problems raised in the meeting. Just acknowledge them and determine who will address them later.
    - Pick the right time for a meeting. One system has 3 am bed analysis meetings to help plan for transports, other meetings occur at the start of each shift.

- Rounding by supervisors and administrators can strengthen sensitivity to operations. Suggestions for maximizing the value of rounding include:

    - Linking it to the check in meeting. An hour is set aside that begins with the check in meeting and is then followed by rounding, which helps the people rounding to know specific things they should be focusing on.
    - Incorporate multiple purposes for rounding. While some places only round to focus on the patient experience, Sentara and other systems focus on safety, the patient experience, and use rounding to reinforce the values of teamwork and equality that they want.

- Consider unannounced rounds. Wishard is beginning to use these as a way to increase continuous sensitivity to operations and to prepare for changes in the JCAHO inspection process.

- Use action plans to effectively deal with all types of problems. Sentara described level 1 and 2 action plans, borrowed from the nuclear industry, which stress that all identified problems need to have an owner and a plan for fixing the problem. Sentara has introduced these plans to assure accountability, ownership, and that someone is empowered to fix every problem that's identified. Suggestions for making these plans work include:

  - Every problem must have a single owner who is accountable for the problem and can delegate people and resources to fix it. Sentara saw considerable improvements when they began insisting that owners of problems be individuals and not groups.
  - Each action plan needs an executive sponsor who is expected to monitor progress on the activities and to intervene to address any obstacles the problem owner does not have the power or resources to fix.
  - Each problem must have a clear and short explanation and a goal.
  - High level action plans (level 1) must list required actions in chronological order and be shared with the supervisor of the problem owner.
  - Level 2 action plans consist of more detailed actions that support each higher level action. These plans are developed and supervised by staff. Sentara has found this process also helps to develop leadership skills.
  - Level 2 plans are the best way to assure that safety/quality issues are aligned with operational issues. Plans that are developed by people in operational roles are less likely to cause conflicts between operational processes and safety processes.
  - To be most effective, plans should be tracked. Things that there are value in monitoring include:

    - Who is responsible for solving what
    - How many action plans are new, open, and have been closed
    - How long it takes for problems to be solved
    - How well the problem is resolved

  - Executive leaders should use the plans to set priorities and make sure too many things are not being taken on for them to be successful. Cincinnati Children's has a systematic review of all goals and actions within Microsystems. In some cases, low priority actions are eliminated or filed for later to help focus on the most important issues.

- Use safety huddles to increase operational awareness. Sentara uses these huddles in units every 12 hours. This assures that the unit is thinking specifically about safety issues at least twice a day as a team. The huddles are very short—lasting only about 4 minutes. A typical safety huddle would allow people to comment on any safety issues they had observed or were concerned about. They also allow people to comment on their own

condition. So if they're having a bad day, they can alert their peers and ask for extra attention. Sentara uses the wingman concept to legitimate this type of support for other members within teams.

- Use behavioral observation and coaching to reinforce the behaviors that matter most. This type of observation is done by a trained coach, who provides immediate feedback on good or bad things they see, and who enters that data into a database to immediately calculate a performance score. Keys to making this approach work include:

    - Job expectations must be simplified enough so that it is possible for all key elements to be observed and so it's possible for employees to do all that they're expected to do. Too much complexity makes reliability impossible.
    - Link performance on the behavioral based expectations to bonuses. Alignment of incentives is regarded as essential for success.
    - Have appropriate people doing the observation and coaching. Sentara invests a considerable amount of time training these coaches, who need to be respected in their teams, be fully bought into the approach, be effective communicators, and model the BBEs for the unit.
    - Data that is collected is aggregated into broader system measures that are monitored across the whole hospital. This reinforces attentiveness to these details by executives and helps set priorities for areas where more training, root cause analysis, or more resources may be needed.

- System interruptions are a major cause of momentary losses in situational awareness. Sentara found that in some units, these interruptions were a major cause of errors. So they've tried a range of things do both reduce the number of interruptions and to help staff recover from interruptions without causing errors. Ideas discussed for accomplishing these aims included:

    - Identifying the causes of interruptions and then redesigning systems so these interruptions could be reduced. For example, Sentara's microbiology and serology unit had many interruptions and errors caused by them. They found that phone calls were a major cause and redesigned processes for handling these calls to reduce number of interruptions.
    - Developing standardized processes for recovering from interruptions. These included processes to assure the person resumes the task in the right place and processes for self checking when resuming a task. Sentara has seen substantive reductions in interruptions in these units since putting these processes in place.
    - Properly divide the responsibilities of workers and managers. Managers are responsible for creating and enforcing processes that minimize interruptions. Workers are responsible for following the correct procedures.
    - Measure system interruptions and other stressors. In areas (like drug dispensing) where interruptions often cause errors, counting the number of observed interruptions or other things that can stress the system is a good idea. Sentara has put red tape around the medication dispensing machines to warn people from interrupting the person who is using them. Such interruptions also are a red rule

in these units and everyone is trained to challenge anyone who may be causing an interruption or distraction.
    - Stress the need for all staff to avoid interrupting others and to challenge others who do. This reinforces equality and teamwork.
    - Share stories about near misses, mistakes, etc. so that the values are constantly reinforced.
    - Some hospitals are posting data on key indicators publicly, while others didn't feel they were ready for this. There was agreement that data should be shared with leaders before posting it in any form.

- Hand hygiene remains a major problem in many hospitals. One system took samples from staff members' hands and posted pictures that showed the types of bugs people were carrying. These pictures had a positive affect on efforts to improve hand hygiene.
- Sometimes mistakes happen when equipment made by different suppliers can be mistaken for other things that can be dangerous when used by mistake. Several of the systems keep records of these types of mix-ups and are working actively with the manufacturers so that these types of mix-ups can be eliminated.

Preoccupation with Failure

High reliability systems are preoccupied with things that can go wrong and things that have gone wrong. Only by focusing on these issues will a system be able to reduce the number of errors likely to occur in the future. According to Weick, high reliability systems encourage people to report errors, examine and talk about errors and near misses so they can be learned from, and are constantly alert to the risks that accompany avoiding errors such as complacency, the temptation to reduce safety margins, and doing things automatically without thought. This section captures ideas shared by the systems on how to become more preoccupied with failure.

- Sentara and other industries it has learned from use three strategies to reduce complacency:

    - They are continuously raising their standards so that what has been good enough is no longer good enough.
    - They look to other units and industries for benchmarks. Almost always they find others who are doing things better, which help drive efforts for continued improvement.
    - Feedback and reinforcement is quick and continuous.

- Part of preoccupation with failure is constantly looking at things that went wrong or almost went wrong to find out their causes and improve systems to circumvent the problem. While all hospitals use root cause analysis (RCA), discussion focused on how to maximize the value of these activities, including:

    - Use common cause analysis to aggregate learning from near misses and other less serious events. While RCA is very detailed, a common cause analysis looks for recurring themes (i.e. interruptions) that may have caused a number of events.

- Sentara uses a less detailed tool of apparent cause analysis to learn from events that are less serious and don't require a full RCA. This approach stresses the need to pay attention to potential problems before they even happen.
- Make the final step in an RCA an evaluation to see whether the changes designed to prevent a recurrence are working. RCA often stops short of this, which can make the process seem less valuable to staff.
- Don't waste time on RCA when you know a system or process is badly flawed. Use the same time and resources to make improvements that you know are needed. When the system is improved, you can then start studying errors more closely.
- Make sure that the RCA process is owned by staff in operations roles, not QI or Safety. Staff in operations knows the processes that are really used as opposed to those that may be documented. And if they own the process, the solutions they develop are more likely to be workable.
- Make sure RCA goes all the way back to the management system failures. Without this, it is too easy to blame staff and ignore systemic problems that will cause staff to repeatedly fail.

- Track deja vu errors, which are errors that have happened all over again. These are important because they can help identify where the process for fixing errors has failed to work. Tracking these errors also reinforces the message that solutions to problems do not guarantee that the mistake will not occur again.
- Focus and simplify work processes. There was widespread agreement that staff have too many policies and procedures to consistently follow, or even to recall that they exist when the policy or procedure is relevant. Simplification is at the core of greater reliability. Suggestions for focusing and simplifying included:

    - Have job aids at the site of specific task as a substitute for policy and procedure manuals on shelves that people cannot easily reference when they need to know how to do something. Jobs are complex and staff can be more reliable if they can easily access guidance exactly where they need to use that guidance.
    - Develop short handouts that address key issues. Sentara developed a one page BBE documented related to safety. It summarizes five key concepts required for safety (and is posted on the portal). By doing that, they distilled what was a very large number of documents and policies into something employees could remember and do.
    - Make sure that cures match the problems. Many times rules are overly complex because they do not really understand the problem. Sentara divides errors into three types: skill based errors, rules based errors, and knowledge based errors. Each error type has a specific type of response.
    - Define the process of simplifying processes as a leadership responsibility. Leaders are responsible for making sure that they've designed work processes that make it easy for employees to do the right thing. For example, Sentara put red tape on all the ventilator plug outlets to make sure that they were always plugged in correctly. Although leaders are in charge of simplifying, they can get very good

ideas on how to do this from their staff, especially after they've established a climate that encourages sharing ideas.
    - It is possible to simplify all types of rules. One system reduced 70 critical care procedures down to 10, making it much easier for the rules to be followed.
    - Develop focus and simplification experts to help on key projects. It is not easy to do this, and without expert help, efforts can fail. Sentara has experts that help units get started simplifying forms. In the process, they train and mentor others who may become experts to help other units.
    - Make sure all of the key players review the new processes and are comfortable with them. Involving them in the simplification process will increase the likelihood of rapid acceptance.
    - The key (and biggest challenge) is to ensure that the changes are translated into work practice.

- While Red Rules are an extremely valuable part of a safety culture, there were several keys to using them effectively. These keys are described earlier in the document in the "Overview Observations" section, number 9.
- Commit to training staff of all types to champion and support all of these effort types. Sentara has worked to develop a pool of staff with training in Lean manufacturing principles, Six Sigma, and human factors approaches. Not one of these approaches was enough to give them a full toolkit for taking on problems of all types.

Spreading Out Improvements

Because all participants represent systems that encompass multiple hospitals and other care settings, spread is a significant challenge. During the day, several types of spread were discussed and a range of options were shared. This section addresses ideas and recognized challenges related to spreading:

- Across units within the care setting
- From nurses and other staff to physicians
- From one setting where an improvement has been made to other hospitals or parts of the system

Spreading Across Units

- Aggregating data and sharing it across the hospital has been used by several of the systems to raise awareness of key issues and to motivate other units to improve to a standard being set in other units.
- Stories were regarded as key to spreading ideas. Specific ideas related to sharing stories effectively included:
    - Capture people doing good things and share those stories. Stories about staff who challenged violations of Red Rules with positive outcomes have to reinforce the message that safety is everyone's job and anyone can be asked about an issue of

- Talking openly about mistakes and near mistakes reinforces the message that they can occur everywhere and that they should be acknowledged when they occur. This was regarded as essential to creating a high reliability culture across the whole organization.
- Sharing stories from and about all types of staff and from patients helps reinforce the principle of equality and teamwork.
- Success stories (and data) make staff feel good about what they are achieving and create a context in which other units are more willing to try similar types of improvements.
- Tell success stories about processes, not just outcomes. For example, stories about how the implementation of a new procedure had saved time rather than created more work, is an extremely important message.
- Make it a habit to begin all staff meetings with a safety-related story. This communicates the importance of a safety focus.

Spreading Improvements to Physicians

Every system present agreed that developing and implementing HRO concepts for staff other than physicians was much easier than doing the same thing with physicians. Each system acknowledged that their efforts with physicians were much further behind. This section shares ideas related to involving physicians in high reliability activities.

- Do not try implementing changes focused on physicians without very strong executive and physician leadership. The few success stories that were shared involving physicians all occurred where strong leadership support existed.
- Begin by making successful changes that involve other staff. These successes increase the willingness of physicians to try them. One hospital in Sentara's system is introducing Red Rules for physicians, but this is still a work in progress.
- Avoid changes that make physicians feel more inefficient. There is a greater willingness to change when physicians think they are becoming more efficient, even if it may involve some loss of independence.
- Allow physicians to violate some rules based on their clinical judgment—but only if they document the reason for the exception. Some systems felt that allowing these types of exceptions also encourage mindfulness required to be an HRO.

Spreading Improvements Across Systems

No system was satisfied with their efforts to systematically and quickly spread improvements across their facilities. However, several approaches were identified that facilitate this type of spread:

- Sharing data system-wide can be effective in creating awareness of performance differences between hospitals. If improvements are substantive and effectively measured, this can create demand for those improvements so that other hospitals can achieve similar improvements.
- Creating informal and even formal settings for peers from different facilities to network and share ideas with each other can help spread good ideas. A number of improvements that have spread in Sentara have occurred because of informal discussions between peers.
- Some systems have tried formal rollouts from one hospital to others in the system. It was not clear whether these efforts worked better than spread that occurred informally.
- Seeing where spread may be occurring informally and then supporting those efforts with well trained staff was a strategy that appeared to work well. This assures that the interest in change already exists and maximizes the impact of the trained staff.